

Remarks

Claim 1 has been amended to clarify that it is directed to the copolymer itself, i.e. the polypropylene-b-poly(ethylene-co-propylene).

During prosecution of the parent application (Serial No. 09/807,842), the Examiner rejected the claims on the basis of Terano reference. The following comparison illustrates how the A-B type block copolymer of the present invention differs from the A-B type block copolymer of Terano, referring to the claim and Examples thereof.

	Present invention	Terano	
	Claim	Claim	Examples
Mw			
	≥100,000 (claim 1)	-	-
	≥30,000 (claim 19)		
[η]		≥0.2	0.7-1.5
B segment wt%	5-<100 (claim 1)	5-80	8-74
	5-50 (claim 18)		
EL content in whole polymer wt%			
	2-95 (claim 1)		
	0.25-47 (claim 18)		
EL content in B segment		10-90	15-80
Other features of the present invention			
		Claim	
Mw/Mn		≥3.5	
20°C xylene extract			
extract ratio		≤50	
B segment remaining ratio		≥50	
Remaining ratio of total EL		≥50	
Elution end point °C		100-120	
Tm °C		≥135	
Melt tension g		≥ 1.0	
Tg tanδ peak temperature °C		-50-10	
storage modulus (E') at 150°C dyne/cm ²		(0.1-30) x10 ⁷	

In the June 24, 2003 Office Action in the parent case, the Examiner took the position that Terano exemplifies propylene-ethylene block copolymer compositions (E) which contain an A-B type block copolymer (C) of propylene (A) and ethylene-propylene random copolymer (B) and a propylene polymer (D), wherein the content of copolymer segment and total ethylene content [(C) + (D)] meet the corresponding parameters of Applicants' claim 1.

However, as noted above, the instant claims require a particular molecular weight of 100,000 or greater (claim 1) or 30,000 or greater (claim 19). There is no mention of this feature of the present invention in the Terano reference. More specifically, the reference fails to mention a particular molecular weight, nor is there any suggestion in Terano which would lead one of ordinary skill in the art to produce polypropylene-b-poly(ethylene-co-propylene) having a weight-average molecular weight as claimed.

In the parent case, the Examiner argued that because the copolymer was the same, the molecular weight must be the same.

However, at page 4 of the instant specification, Applicants disclose examples of other propylene block copolymers, for example, in Japanese Patent Application Laid- Open (kokai) Nos. 8-92338, and 9-87343. These references disclose block polymers which are similar to the block polymer of the present invention, in the sense that they both relate to a polypropylene-b-poly(ethylene-co-propylene) comprising a polypropylene segment and a poly(ethylene-co-propylene) segment, which are chemically linked. However, these references teach molecular weights of 11,000-20,000. This indicates that molecular weights can vary significantly among the same type of polymer, i.e. polypropylene-b-poly(ethylene-co-propylene) block copolymers, thus refuting the Examiner's position that the molecular weight in Terano must be the same as in the present invention.

Applicants note that claim 49 of the present application does not specifically include a molecular weight limitation. However, this claim does require the molded article to have a flexural modulus of 100-1,200 MPa and to exhibit no blushing due to 300% elongation. There is no mention of this feature of the present invention in the Terano reference. More specifically, the reference fails to mention either of these characteristics, nor is there any suggestion in Terano which would lead one of ordinary skill in the art to produce a molded article with these characteristics.

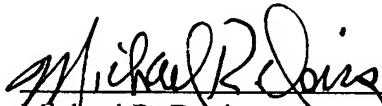
In this regard, Applicants specifically note that the disclosure in Terano at column 12, lines 3-10 states that the physical properties of the resulting molded products are inferior to those according to the Terano invention, when a content of an A-B type block copolymer (C) in the propylene-ethylene copolymer composition (E) is less than that according to the Terano invention; when it is more than that according to the Terano invention, a yield of the total polymers obtained per unit catalyst is lowered; and in such case, the molded products are of no practical use (see comparative reference 3 in Terano).

For these reasons, Applicants take the position that Terano does not teach or suggest the subject matter of the present invention, which is directed to a particular A-B type block copolymer, a blushing-resistant transparent polypropylene resin for molding, or the molded article itself.

Respectfully submitted,

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